WHAT IS CLAIMED IS:

1. A converter for converting an OTDM type optical signal into a WDM type optical signal, characterized in that it comprises a plurality of devices connected in parallel for temporally subsampling the OTDM type optical signal at a predetermined subsampling frequency, each temporal subsampling device comprising:

· a generator (10_1, 10_2, 10_3, 10_4) for generating clock pulses transmitted at the predetermined subsampling frequency and at a conversion wavelength (λ_{H1}, λ_{H2}, λ_{H3}, λ_{H4}) specific to the subsampling device, and

· a wavelength converter device (16_1, 16_2, 16_3, 16_4) adapted to receive at its input the OTDM type optical signal and the clock pulses at the conversion wavelength (λ_{H1}, λ_{H2}, λ_{H3}, λ_{H4}) specific to the subsampling device in order to supply at its output a subsampled signal of the optical signal at the conversion wavelength, the converter device (16_1, 16_2, 16_3, 16_4) comprising:

· a linear optical amplifier (18_1, 18_2, 18_3, 18_4) adapted to receive the OTDM type optical signal and the clock pulses propagating in the opposite direction, the maximum linear power of the amplifier being adjusted so that it can be less than the peak power of the OTDM type optical signal, and

· a phase modulation to amplitude modulation converter (20; 20_1, 20_2, 20_3, 20_4).

2. A converter according to claim 1 for converting an OTDM type optical signal into a WDM type optical signal, wherein the phase modulation to amplitude modulation converter (20_1, 20_2, 20_3, 20_4) comprises a delayed differential Mach-Zehnder interferometer.

3. A converter according to claim 1 or claim 2 for converting an OTDM type optical signal into a WDM type optical signal, comprising a circulator (22) between the amplifier (18_1, 18_2, 18_3, 18_4) and the modulation converter

in order to direct the OTDM optical signal to the amplifier (18_1, 18_2, 18_3, 18_4) and the output signal of the amplifier (18_1, 18_2, 18_3, 18_4) to the modulation converter (20_1, 20_2, 20_3, 20_4).

4. A converter for converting a WDM type optical signal into an OTDM type optical signal, the WDM type optical signal consisting of a plurality of wavelength-division multiplexed optical signals each transmitted at a wavelength specific to it, characterized in that it comprises:

· a generator (34) for generating a continuous wave signal transmitted at a predetermined conversion wavelength (λ_s), and

· a plurality of wavelength converter devices (16_1, 16_2, 16_3, 16_4) in parallel, each converter device being adapted to receive at its input the continuous wave signal and one of the wavelength-division multiplexed optical signals in order to supply at its output an OTDM type optical signal transmitted at a temporal frequency that is a multiple of the common frequency of the wavelength-division multiplexed optical signals, each converter device comprising:

· a linear optical amplifier (18, 18_1, 18_2, 18_3, 18_4) adapted to receive the continuous wave optical signal and the wavelength-division multiplexed optical signal propagating in the opposite direction, the maximum linear power of the amplifier being adjusted so that it can be less than the peak power of the wavelength-division multiplexed optical signal, and

· a phase modulation to amplitude modulation converter (20; 20_1, 20_2, 20_3, 20_4), and

· a plurality of time shifter devices (32_1, 32_2, 32_3, 32_4) each associated with a specific converter device (16_1, 16_2, 16_3, 16_4).

5. A converter according to claim 4 for converting a WDM type optical signal into a OTDM type optical signal, including means (32_1, 32_2, 32_3, 32_4) for time shifting wavelength-division multiplexed optical signals relative to each other and a single converter device (16) adapted to receive at its input the time shifted wavelength-division multiplexed optical signals.

6. A converter according to claim 4 or claim 5 for converting a WDM type optical signal into a OTDM type optical signal, wherein the phase modulation to amplitude modulation converter (20; 20_1, 20_2, 20_3, 20_4) comprises a delayed differential Mach-Zehnder interferometer.

7. A converter according to any one of claims 4 to 6 for converting a WDM type optical signal into a OTDM type optical signal, including at least one circulator (22; 22_1, 22_2, 22_3, 22_4) between each amplifier and each modulation converter in order to direct the wavelength-division multiplexed optical signals to the amplifier and the output signal of the amplifier to the modulated signal converter.